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## FOREWORD

HQ Department of the Army, Office of The Surgeon General, General Orders Number 40, dated 1 December 1961, established the United States Army Research Institute of Environmental Medicine (USARIEM), at Natick, Massachusetts. Although the Institute was officially formed at that time, as part of the U.S. Army Medical Research and Development Command, its origins extend back to World War II, as a composite of elements of the Armored Medical Research Laboratory, at Fort Knox, Kentucky, and the Environmental Protection Research Division, of the Quartermaster Research and Development Command, at Natick. The Institute was, therefore, a merger of a medical and a quartermaster unit.

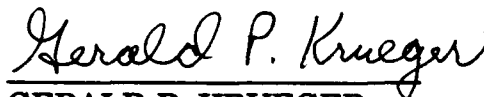
Since its establishment in 1961 at Natick, USARIEM has become a world-renowned leader in state-of-the-art physiological, psychological and biomedical research designed to reduce the impact of environmental adversities on the dedicated men and women serving in the United States Armed Forces, particularly in the U.S. Army. USARIEM's research generates significant occupational, environmental and preventive medicine guidance for the establishment of medical doctrine and operational procedures to preserve the health and performance of our military forces.

Many USARIEM members contributed to the assembly of this bibliographic listing. We are truly grateful to Marie E. Stephens for the overall direction of the project, and to Donna T. Cardinal who accomplished the computerized formatting and listing.

The publications listed in this volume are indicative of the research efforts and achievements produced by a superb multi-disciplinary and technical staff in support of the Institute's mission and on behalf of United States Soldiers. While mission emphasis may change, along with changing times and the world situation, the steady, highly productive and influential work accomplished by this Institute's staff is without parallel. The works delineated on the pages which follow are a testament to those efforts and achievements.

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30 September 1992

  
GERALD P. KRUEGER  
Colonel, MS  
Commanding

## INTRODUCTION

USARIEM's mission is to sustain and maximize the health and performance of individual military personnel, crews and troop populations through basic and applied research in environmental medicine (heat, cold, an altitude), military work, physical training and nutrition. Basic research is conducted to elucidate mechanisms and sequelae of environmental stress and injury, while applied research is conducted to provide preventive and therapeutic countermeasures to performance decrements, injuries and illnesses associated with military operations that expose forces to a wide spectrum of physical and mental demands, materiel systems hazards, environmental conditions, and combat stress. USARIEM assists the U.S. Army Natick Research, Development and Engineering Center in the development of personal clothing and equipment by assessing the physiological impact of these items under all climatic conditions, and by conducting nutritional assessments of proposed military rations.

The Institute is organized into the following research Directorates:

**Environmental Pathophysiology Directorate:** Scientists study the structural and functional basis of illnesses, injuries and physiological performance effects associated with exposure to environmental extremes of heat, cold and high altitude. Non-human models are used to simulate and investigate injury or illness caused by exposure to the full range of environmental conditions and military metabolic workloads. Through an understanding of bodily defense mechanisms including systemic, organ, cellular and subcellular events, the goal is to elucidate disabling injuries.

**Environmental Physiology and Medicine Directorate:** Scientists study the illnesses/injuries, physiological mechanisms and work performance effects associated with exposure to environmental extremes of heat, cold and high altitude. Human physiological models are used to predict, prevent and treat environmental injuries and illnesses, while biophysical modeling, laboratory simulation and field testing are used to predict soldier performance, alone and in combination with their equipment, during exposure to environmental extremes and military workloads.

**Occupational Health and Performance Directorate:** Scientists conduct research to enhance the performance (physical, cognitive, behavioral and psychomotor) of military occupational tasks, or to prevent performance decrements due to physical overload, nutritional deprivation, environmental and operational stresses. Solutions are produced through improved individual selection, alterations in training, nutritional supplementation, modification of tasks, operational procedures, or tactical doctrine.



## **OPEN LITERATURE PUBLICATIONS**

## 1961

1. Iampietro, P.F., M. Mager and E.B. Green. Some physiological changes accompanying tetany induced by exposure to hot, wet conditions. Journal of Applied Physiology, 16:409-412, 1961.
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